Patent
Attorney's Docket No. 004501-548

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	)	
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MAKAN CHEN, et al.	)	Group Art Unit: Unassigned
	)	
Application No.: Unassigned	)	Examiner: Unassigned
	)	
Filed: May 31, 2001	)	
	)	
For: HIGH-TEMPERATURE SUPERCONDUCTOR ARRANGEMENT	)	

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination of the above-captioned patent application, it is requested that the following amendments be entered.

IN THE CLAIMS:

Please replace Claims 1-8 as follows.

1. (Amended) A high-temperature superconductor arrangement having a superconductor and having an electrical bypass which is in electrical and mechanical contact with the superconductor, with the superconductor being at a superconductor temperature T_{SC} and the bypass being at a bypass temperature T_{BP}, wherein the bypass produces a compressive pressure on the superconductor in a current flow direction even when the superconductor temperature T_{SC} is below the bypass temperature T_{BP}.

2. (Amended) The arrangement as claimed in claim 1, with the superconductor having a first thermal coefficient of expansion a_{SC} and the bypass having a second thermal coefficient of expansion a_{BP} wherein, at a temperature T_0 which is above the maximum operating temperature of the bypass:

$$a_{BP}\cdot(T_0-T_{BP}) > a_{SC}\cdot(T_0-T_{SC})$$

3. (Amended) The arrangement as claimed in claim 2, with T_C being the critical temperature of the superconductor, wherein, for the maximum bypass temperature T_{BP}^{max}:

$$\frac{T_{BP}^{max}-T_C}{T_0-T_C} < \frac{\alpha_{BP}-\alpha_{SC}}{\alpha_{BP}} .$$

4. (Amended) The arrangement as claimed in claim 1, wherein the superconductor is in strip form and has two main surfaces parallel to the current flow direction, and wherein the bypass is in contact with the superconductor via both main surfaces.

5. (Amended) The arrangement as claimed in claim 4, wherein the superconductor has two layers which are separated by an electrical insulator and in which the current flows essentially in the opposite direction.

6. (Amended) The arrangement as claimed in claim 1, wherein the bypass is made of steel and there is a solder layer or an electrically conductive adhesive layer between the superconductor and the bypass.

7. (Amended) A method for producing a high-temperature superconductor arrangement having a superconductor and having an electrical bypass which is in electrical and mechanical contact with the superconductor, with the superconductor being at a superconductor temperature T_{SC} and having a first thermal coefficient of expansion a_{SC}, and the bypass being at a bypass temperature T_{BP} and having a second thermal coefficient of expansion a_{BP},

wherein the bypass produces a compressive pressure on the superconductor in a current flow direction even when the superconductor temperature T_{SC} is below the bypass temperature T_{BP}, and wherein the superconductor and the bypass are brought into mechanical contact, without any pressure in the current flow direction, at a production temperature T_0 which is above the maximum operating temperature of the bypass.

8. (Amended) The method as claimed in claim 7, wherein the bypass is made of steel and is brought into contact with the superconductor by means of soldering or bonding.

REMARKS

By way of the foregoing amendments to the claims, Claims 1-8 have been amended to delete the multiple dependencies and reference numerals. These changes have been made in accordance with 37 C.F.R. § 1.121 as amended on November 7, 2000. Marked-up versions of Claims 1-8 indicating the changes accompany this Preliminary Amendment.

Early and favorable consideration with respect to this application is respectfully requested.

Should any questions arise in connection with this application, the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

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Attachment to Preliminary Amendment dated May 31, 2001

Marked-up Claims 1-8

1. (Amended) A high-temperature superconductor arrangement having a superconductor [(1)] and having an electrical bypass [(2)] which is in electrical and mechanical contact with the superconductor [(1)], with the superconductor [(1)] being at a superconductor temperature T_{SC} and the bypass [(2)] being at a bypass temperature T_{BP}, [characterized in that] wherein the bypass [(2)] produces a compressive pressure on the superconductor [(1)] in a current flow direction [(I)] even when the superconductor temperature T_{SC} is below the bypass temperature T_{BP}.

2. (Amended) The arrangement as claimed in claim 1, with the superconductor [(1)] having a first thermal coefficient of expansion a_{SC} and the bypass [(2)] having a second thermal coefficient of expansion a_{BP} [characterized in that] wherein, at a temperature T_0 which is above the maximum operating temperature of the bypass [(2)]:

$$a_{BP} \cdot (T_0 - T_{BP}) > a_{SC} \cdot (T_0 - T_{SC})$$

3. (Amended) The arrangement as claimed in claim 2, with T_C being the critical temperature of the superconductor [(1)], [characterized in that] wherein, for the maximum bypass temperature T_{BP}^{max}:

$$\frac{T_{BP}^{max} - T_C}{T_0 - T_C} < \frac{\alpha_{BP} - \alpha_{SC}}{\alpha_{BP}} .$$

Attachment to Preliminary Amendment dated May 31, 2001

Marked-up Claims 1-8

4. (Amended) The arrangement as claimed in claim 1, [characterized in that] wherein the superconductor [(1)] is in strip form and has two main surfaces [(10, 11)] parallel to the current flow direction [(I)], and [in that] wherein the bypass [(2)] is in contact with the superconductor [(1)] via both main surfaces [(10, 11)].

5. (Amended) The arrangement as claimed in claim 4, [characterized in that] wherein the superconductor has two layers which are separated by an electrical insulator and in which the current flows essentially in the opposite direction.

6. (Amended) The arrangement as claimed in claim 1, [characterized in that] wherein the bypass [(2)] is made of steel and there is a solder layer or an electrically conductive adhesive layer [(20)] between the superconductor [(1)] and the bypass [(2)].

7. (Amended) A method for producing a high-temperature superconductor arrangement having a superconductor [(1)] and having an electrical bypass [(2)] which is in electrical and mechanical contact with the superconductor [(1)], with the superconductor [(1)] being at a superconductor temperature T_{SC} and having a first thermal coefficient of expansion a_{SC}, and the bypass [(2)] being at a bypass temperature T_{BP} and having a second thermal coefficient of expansion a_{BP},

Attachment to Preliminary Amendment dated May 31, 2001

Marked-up Claims 1-8

[characterized in that] wherein the bypass [(2)] produces a compressive pressure on the superconductor [(1)] in a current flow direction [(I)] even when the superconductor temperature T_{SC} is below the bypass temperature T_{BP}, and [in that] wherein the superconductor [(1)] and the bypass [(2)] are brought into mechanical contact, without any pressure in the current flow direction [(I)], at a production temperature T_0 which is above the maximum operating temperature of the bypass [(2)].

8. (Amended) The method as claimed in claim 7, [characterized in that] wherein the bypass [(2)] is made of steel and is brought into contact with the superconductor [(1)] by means of soldering or bonding.